

JUL 2 7 2001

TECH CENTER 1600/2900

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/671,050

DATE: 06/21/2001 TIME: 17:53:52

Input Set : A:\lex46 SEQLIST.TXT

Output Set: N:\CRF3\06212001\I671050.raw

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ENTERED
     4 <110> APPLICANT: Donoho, Gregory
              Turner, C. Alexander Jr.
              Nehls, Michael
              Friedrich, Glenn
              Zambrowicz, Brian
      8
              Sands, Arthur T.
     11 <120> TITLE OF INVENTION: Novel Human Kinase Proteins and
              Polynucleotides Encoding the Same
     14 <130> FILE REFERENCE: LEX-0046-USA
C--> 16 <140> CURRENT APPLICATION NUMBER: US/09/671,050
C--> 16 <141> CURRENT FILING DATE: 2001-06-11
     16 <150> PRIOR APPLICATION NUMBER: US 60/156,511
     17 <151> PRIOR FILING DATE: 1999-09-28
     19 <160> NUMBER OF SEQ ID NOS: 13
     21 <170> SOFTWARE: FastSEQ for Windows Version 4.0
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     24 <211> LENGTH: 561
     25 <212> TYPE: DNA
     26 <213> ORGANISM: homo sapiens
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     30 tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat
                                                                               120
     31 gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat
                                                                               180
     32 ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt
                                                                               240
     33 gaatactgtg atcatacact titaaatgag ctggaaagaa acccaaatgg agttgctgat
                                                                               300
     34 ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat
                                                                               360
     35 aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc
                                                                               420
     36 aagatttgtg acttcgggtt tgcacaaatt ctgagttgga cttcatcttt ctctggtgcc
                                                                               480
     37 teettgattg gettaatagt tgacettetg aattetttt etgecaatte agagattttt
                                                                               540
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     38 ctcctggctt ggatccattg c
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     41 <211> LENGTH: 187
      42 <212> TYPE: PRT
      43 <213> ORGANISM: homo sapiens
      45 <400> SEQUENCE: 2
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                                             10
                          5
     48 Val Val Phe Lys Cys Arg Asn Lys Thr Ser Gly Gln Val Val Ala Val
                                         25
                     20
      50 Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala
                                                          45
                                     40
                 35
      52 Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val
                                 55
             50
      54 Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe
                                                  75
                             70
      56 Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn
                                             90
                         85
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PATENT APPLICATION: US/09/671,050 Input Set : A:\lex46 SEQLIST.TXT Output Set: N:\CRF3\06212001\I671050.raw 58 Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln 105 60 Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys 100 120 62 Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp 115 140 135 64 Phe Gly Phe Ala Gln Ile Leu Ser Trp Thr Ser Ser Phe Ser Gly Ala 155 150 66 Ser Leu Ile Gly Leu Ile Val Asp Leu Leu Asn Ser Phe Ser Ala Asn 170 165 68 Ser Glu Ile Phe Leu Leu Ala Trp Ile His Cys 185 180 71 <210> SEQ ID NO: 3 72 <211> LENGTH: 1068 73 <212> TYPE: DNA 74 <213> ORGANISM: homo sapiens 77 atggaaaagt atgaaaaatt agctaagact ggagaagggt cttatggggt tgtattcaaa 76 <400> SEQUENCE: 3 60 78 tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat 120 79 gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat 180 80 ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt 240 81 gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat 300 82 ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat 360 83 aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc 420 84 aagatttgtg acttcgggtt tgcacaaatt ctgattccag gagatgccta caccgattat 480 85 gtagctacga gatggtaccg agctcctgaa cttcttgtgg gagatactca gtatggttct 540 86 tcagtcgata tatgggctat tggttgtgtt tttgcagagc tcctgacagg ccagccactg 600 87 tggcctggaa aatcagatgt ggaccaactt tatctgataa tcagaacact agtagagacg 660 88 gggtttcgcc atgttgacca ggctggtctc gaactcttga cgtcaagtga tccacctgcc 720 89 gtagcctctc aaagtgctgg aattacagga aaattaatcc caagacatca atcaatcttt 780 90 aaaagtaacg ggtttttcca tggcatcagt atacctgagc cagaagacat ggaaactctt 840 91 gaggaaaagt teteagatgt teateetgtg getetgaact teatgaaggg gtgtetgaag 900 92 atgaatccag atgacagatt aacctgttcc caactectgg agageteeta etttgattet 960 93 tttcaagagg cccaaattaa aagaaaagca cgtaatgaag gaagaaacag aagacgccaa 1020 1068 94 caggtcagag getgtgtttg getgetgeag etetgeteca ggetgeat 96 <210> SEQ ID NO: 4 97 <211> LENGTH: 356 98 <212> TYPE: PRT 99 <213> ORGANISM: homo sapiens 101 <400> SEQUENCE: 4 102 Met Glu Lys Tyr Glu Lys Leu Ala Lys Thr Gly Glu Gly Ser Tyr Gly 10 104 Val Val Phe Lys Cys Arg Asn Lys Thr Ser Gly Gln Val Val Ala Val 5 25 106 Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala 40 108 Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val 55 110 Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe

2 5, 5

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Input Set : A:\lex46 SEQLIST.TXT
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112 Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn
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114 Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln
115 100 105
116 Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys
                          120
118 Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp
117 115
   130 135
120 Phe Gly Phe Ala Gln Ile Leu Ile Pro Gly Asp Ala Tyr Thr Asp Tyr
                                     155
       150
122 Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Val Gly Asp Thr
                                       175
                      170
       165
124 Gln Tyr Gly Ser Ser Val Asp Ile Trp Ala Ile Gly Cys Val Phe Ala
                                            190
                              185
125 180
126 Glu Leu Leu Thr Gly Gln Pro Leu Trp Pro Gly Lys Ser Asp Val Asp
127 195
                           200
128 Gln Leu Tyr Leu Ile Ile Arg Thr Leu Val Glu Thr Gly Phe Arg His
                                         220
129 210 215
130 Val Asp Gln Ala Gly Leu Glu Leu Leu Thr Ser Ser Asp Pro Pro Ala
                                    235
                    230
131 225
132 Val Ala Ser Gln Ser Ala Gly Ile Thr Gly Lys Leu Ile Pro Arg His
                                      255
                                  250
                245
134 Gln Ser Ile Phe Lys Ser Asn Gly Phe Phe His Gly Ile Ser Ile Pro
                                      270
                               265
135 260
136 Glu Pro Glu Asp Met Glu Thr Leu Glu Glu Lys Phe Ser Asp Val His
                                   285
                            280
 137 275
 138 Pro Val Ala Leu Asn Phe Met Lys Gly Cys Leu Lys Met Asn Pro Asp
 139 290
                        295
 140 Asp Arg Leu Thr Cys Ser Gln Leu Leu Glu Ser Ser Tyr Phe Asp Ser
                     310 315
 142 Phe Gln Glu Ala Gln Ile Lys Arg Lys Ala Arg Asn Glu Gly Arg Asn
                     330 335
                  325
 144 Arg Arg Arg Gln Gln Val Arg Gly Cys Val Trp Leu Leu Gln Leu Cys
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 146 Ser Arg Leu His
 147 355
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 150 <211> LENGTH: 972
 151 <212> TYPE: DNA
 152 <213> ORGANISM: homo sapiens
 154 <400> SEQUENCE: 5
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 156 tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat
                                                                120
 157 gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat
                                                                180
 158 ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt
                                                                240
 159 gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat
                                                                300
 160 ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat
                                                                360
 161 aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc
                                                                420
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162 aagatttgtg acttcgggtt tgcacaaatt ctgattccag gagatgccta caccgattat
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163 gtagctacga gatggtaccg agctcctgaa cttcttgtgg gagatactca gtatggttct
                                                                          540
164 tcagtcgata tatgggctat tggttgtgtt tttgcagagc tcctgacagg ccagccactg
                                                                          600
165 tggcctggaa aatcagatgt ggaccaactt tatctgataa tcagaacact aggaaaatta
                                                                          660
166 atcccaagac atcaatcaat ctttaaaagt aacgggtttt tccatggcat cagtatacct
                                                                          720
167 gagccagaag acatggaaac tettgaggaa aagtteteag atgtteatee tgtggetetg
                                                                          780
168 aacttcatga aggggtgtct gaagatgaat ccagatgaca gattaacctg ttcccaactc
                                                                          840
169 ctggagaget cetaetttga ttetttteaa gaggeecaaa ttaaaagaaa ageaegtaat
                                                                          900
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174 <211> LENGTH: 324
175 <212> TYPE: PRT
176 <213> ORGANISM: homo sapiens
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                    5
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183 Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala
                20
                                40
 184 35
 185 Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val
                            55
 187 Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe
                                            75
                        70
 188 65
 189 Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn
                                         90
                    85
 191 Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln
                                     105
                100
 193 Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys
                                 120
 195 Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp
      115
                             135
 196 130
 197 Phe Gly Phe Ala Gln Ile Leu Ile Pro Gly Asp Ala Tyr Thr Asp Tyr
                                             155
                         150
 198 145
 199 Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Val Gly Asp Thr
                                         170
                     165
 201 Gln Tyr Gly Ser Ser Val Asp Ile Trp Ala Ile Gly Cys Val Phe Ala
                                     185
 203 Glu Leu Leu Thr Gly Gln Pro Leu Trp Pro Gly Lys Ser Asp Val Asp
                 180
                                 200
       195
  205 Gln Leu Tyr Leu Ile Ile Arg Thr Leu Gly Lys Leu Ile Pro Arg His
                                                 220
                             215
  207 Gln Ser Ile Phe Lys Ser Asn Gly Phe Phe His Gly Ile Ser Ile Pro
                                             235
                         230
  209 Glu Pro Glu Asp Met Glu Thr Leu Glu Glu Lys Phe Ser Asp Val His
                                         250
                      245
  211 Pro Val Ala Leu Asn Phe Met Lys Gly Cys Leu Lys Met Asn Pro Asp
                                     265
                  260
```

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 $\label{eq:constraints} \mathcal{L}(x,y) = \{x \in \mathcal{X} \mid x \in \mathcal{X} \mid x \in \mathcal{X} \mid x \in \mathcal{X}\}$

```
213 Asp Arg Leu Thr Cys Ser Gln Leu Leu Glu Ser Ser Tyr Phe Asp Ser
                              280
           275
215 Phe Gln Glu Ala Gln Ile Lys Arg Lys Ala Arg Asn Glu Gly Arg Asn
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                         295
217 Arg Arg Gln Gln Val Arg Gly Cys Val Trp Leu Leu Gln Leu Cys
                                        315
                      310
218 305
219 Ser Arg Leu His
222 <210> SEQ ID NO: 7
223 <211> LENGTH: 594
224 <212> TYPE: DNA
225 <213> ORGANISM: homo sapiens
227 <400> SEQUENCE: 7
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                                                                      120
230 gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaaacat
231 ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt
232 gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat
233 ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat
234 aactgtatte acagagatat aaaacetgaa aatattetaa taaetaagea aggaataate
                                                                       420
235 aagatttgtg acttcgggtt tgcacaaatt ctgagttgga cttcatcttt ctctggtgcc
                                                                       480
236 teettgattg gettaatagt tgacettetg aattetttt etgecaatte agagattttt
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                              40
 250 35
 251 Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val
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                       55
 252 50
 253 Asn Leu Ile Glu Val Phe Arg Lys Arg Lys Met His Leu Val Phe
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                       70
 255 Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn
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 257 Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln
                                                   110
                                   105
        100
 259 Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys
                                                 125
                               120
      115
 261 Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp
                                              140
                           135
       130
 263 Phe Gly Phe Ala Gln Ile Leu Ser Trp Thr Ser Ser Phe Ser Gly Ala
                                        155
                        150
 265 Ser Leu Ile Gly Leu Ile Val Asp Leu Leu Asn Ser Phe Ser Ala Asn
                                                          175
                                       170
                    165
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VERIFICATION SUMMARY

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Input Set : A:\lex46 SEQLIST.TXT

Output Set: N:\CRF3\06212001\1671050.raw

L:16 M:270 C: Current Application Number differs, Replaced Current Application No L:16 M:271 C: Current Filing Date differs, Replaced Current Filing Date